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Scorch adherence reduction method for inkjet recorders, involves providing protective layer containing metal and/or metallic oxide to surface of heater configured in recording head of inkjet printer

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NOVELTY

Scorch adhered to surface of heater (used for heating the ink and discharging heated ink from an orifice) configured in recording head (13) of inkjet printer, is reduced by providing protective layer (16) containing metal and/or metallic oxide to the heater surface. The ink contains color material, liquid solvent, aldaric acid and/or its salt.

DETAILED DESCRIPTION

INDEPENDENT CLAIMS are also included for the following: (i) inkjet recording method which involves impressing electric signal pulse to the heater configured along ink flowpath (14), heating the ink depending on recording signal and discharging the heated ink from an orifice (22); (ii) inkjet recording apparatus comprising an unit to impress electric signal pulse to the heater, ink storing unit and ink receiving unit; (iii) recording unit comprising a recording head for inkjet recording; and (iv) durability maintenance of recording head .

USE

For reducing the amount of scorch adhered on heaters of inkjet recorders.

ADVANTAGE

The amount of scorch adhered on the recording head heater is efficiently reduced and hence durability of recording head is enhanced.

DESCRIPTION OF DRAWING

The figure shows cross-sectional chart of recording head.
Recording head 13
Ink flowpath 14
Protective layer 16
Orifice 22

X1

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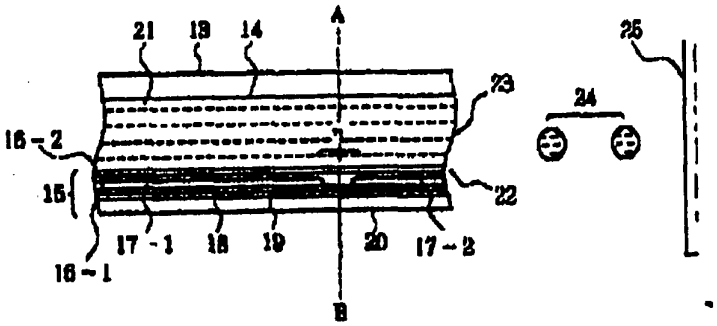
EXAMPLE

(In weight parts) An ink comprising Project fast black 2 (2), diethylene glycol (10), 2-sodium tartrate dihydrate (2), sodium hydroxide (0.1) and water (84.9) was prepared. An inkjet recording apparatus with multirecording head comprising heater provided with tantalum oxide and tantalum protective layer was used to heat the ink and discharge heated ink, depending on recording signal. The critical voltage (Vth), actuation voltage (r) and drive voltage (Vop) during discharge of ink measured by impressing pulse signals of frequency 6-50 Hz and pulse width of 1.1 μseconds (On) + 3 μseconds (Off) + 3.2 μseconds (On) were found to be 21 V, 1.39 and 24.8 V, respectively. The amount of adhesion of scorch to the heater was found to be reduced and durability of recording head was found to be enhanced.

TECHNOLOGY FOCUS

Inorganic Chemistry - Preferred Metal: The metal is tantalum and its oxide is tantalum oxide.

Organic Chemistry - Preferred Aldaric acid: The aldaric acid is tartaric acid and its salt is tartrate. 0.005-20 weight% (wt.%) of aldaric acid is contained in the ink. Preferred tartrate: The tartrate is organic ammonium salt of lithium tartrate, sodium tartrate, potassium tartrate, potassium sodium tartrate and/or tartaric acid. Preferred Coloring Material: The coloring material is water soluble dye or pigment. Preferred Solvent: The liquid solvent contains 35-96 wt.% of water. Imaging And Communication - Preferred Process: The energy set to the heater is Eop and minimum energy input required to discharge the heated ink is Eth. Eop and Eth satisfies the relation, Eop÷Eth = 1.10-1.50.



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